

Commanders Institute New Standards for Quality Medical Data

Bill Snethen



The events of September 11, 2001, created an immediate need for the MC4 system, thus reducing the testing and integration schedules. In 2003, the MC4 system was rushed onto the battlefield, giving providers the first opportunity to electronically document healthcare on the battlefield.

During the first Gulf War, patient care on the battlefield was documented on paper field medical cards—DD Form 1380—that rarely accompanied the injured to the next level of care, let alone made it to the servicemember's permanent medical record. As a result, wounded warriors returned to the United States with undocumented injuries and care, leading to tremendous difficulty accessing their medical benefits from the Department of Veterans Affairs.

In 1997, presidential and congressional mandates chose to right this wrong by calling for a medical tracking system and a lifelong electronic medical record (EMR) for all servicemembers. The result was the MC4 program. The program began to take shape in 1999, integrating state-of-the-art, off-the-shelf hardware and software.

The System in Action

The events of Sept. 11, 2001, created an immediate need for the MC4 system, and in 2003, the MC4 system was rushed onto the battlefield, giving providers the first opportunity to electronically document healthcare on the battlefield. Initially, the fledgling system took a beating on the battlefield, since the hardware and software did not perform as well as medical providers would have preferred. In time, the software applications improved, new handheld devices eased point-of-care data entry, and commanders began to take responsibility for integrating MC4 within their units as the only method of documenting health records in a deployed environment. The use of paper records was cast aside for laptops and handheld devices.

Today, MC4 is an established, proven system in Southwest Asia. Units have moved past the point of simply using MC4 systems to enter medical data. Medical providers are developing methods to streamline the data

Snethen works in the U.S. Army's Medical Communications for Combat Casualty Care (MC4) Public Affairs Office.



"We realized it was extremely important for our providers to electronically document every medical procedure so that servicemembers have a complete medical history of every procedure conducted while they are deployed. But it is just as important that the data be entered in a uniform manner so that commanders can review roll-up reports to make accurate analytical decisions regarding medical support within the AOR."

**— Lt. Col. Darlene McCurdy
TF 146 commander**

entry process, including the use of templates for injuries they see most often. Commanders look to uncover new ways to increase the quality of the information entered by providers and use the captured data to develop better reporting procedures. Task Force (TF) 146 Multifunctional Medical Battalion (MMB) in Iraq is one example of a unit that stepped up its efforts to accurately capture medical data and maximize the system to the fullest potential.

Incomplete Records

Shortly after their boots hit the ground in October 2006, TF 146 commanders discovered medical documentation missing from roll-up reports at the battalion's level I and II medical facilities, and they found discrepancies and inaccuracies with the way providers were entering data into the MC4 system.

"Within our first month in Iraq, we discovered that our medical providers only entered approximately 50 percent of the medical care performed into MC4," said Lt. Col. Darlene McCurdy, TF 146 commander. "We also learned that while the use of MC4 had been implemented throughout the area of responsibility before our arrival, a standardized method of entering data into the system had not been instituted."

This incomplete and inaccurate data entry seriously affected the quality of medical surveillance conducted by TF 146. More importantly, it contributed to incomplete medical records.

McCurdy and her chief of clinical operations officer in charge, Capt. Karen Sims, understood that it was imperative for medical providers to fully document the care given to servicemembers so the battalion could successfully manage its medical resources. To accomplish this, processes needed to be reviewed, steps that hindered efforts needed to be weeded out, and best practices needed to be implemented throughout the battalion.

"I made it known that the early efforts of recording medical data throughout the battalion were less than satisfactory and needed to improve immediately," McCurdy said. "This allowed the clinical operations section under the guidance of Maj. Leonard Kosicki, force health protection officer, to proceed and uncover any issues that obstructed the collection of quality data, as well as make recommendations for improvement."

One factor TF 146 discovered was that a number of medical providers within the unit resisted using laptops to document treatments administered. Their argument was that electronic documentation took too much time to enter, and this was time taken away from caring for patients. To overcome the provider resistance, meetings were held at every location within the area of responsibil-

ity to discuss the importance of electronically documenting the patient data. With the battalion distributed across an AOR approximately the size of Texas, this was no easy task. Many trips were needed to visit all of the medical treatment facilities (MTFs) and some remote forward operating bases.

"The face-to-face meetings proved to be very important since it showed the providers and local commanders that I am adamant about EMRs and that this was something that they had to do immediately," McCurdy said.

Changing the Process

As the clinical operations team examined the quality of EMRs, they discovered that the crux of the problem was that medical providers were not electronically capturing the majority of ancillary services administered, causing large information gaps in the amount of care MTFs provided. There was little doubt that this needed to be changed.

As Sims and 1st Lt. Alvin Vaughn met with providers at MTFs, they also examined the capabilities of the MC4 systems and monitored how the providers entered data. Once the observations and best methods were compiled, TF 146 MMB prescribed standard operating procedures to the MTFs, describing how every medical provider assigned to the task force must electronically capture the data within the MC4 systems. This included documentation for outpatient care, a patient category list of the most frequent treatments throughout the AOR, and guidance on the closure of EMRs.

"The mandates offered us the opportunity to institute and teach one standardized method of data collection and got us one step closer to our goal of achieving a higher quality of data collection," McCurdy said. "Through our efforts, we discovered TF 146 unleashed greater potential for the MC4 system in a deployed environment. We uncovered more efficient methods of using the system and added new tools, which in turn, improved our methods of reporting and tracking data."

One such tool monitors the number of encounters initiated within the various software applications on the MC4 system. This new tool allowed the battalion commanders to target data entry disparities and uncovered problems of closed network ports and loss of connectivity.

The monitoring tool also led to the discovery of orphan files that were properly completed and closed, yet had not been transferred to the network for reporting purposes and ultimately were not transferred to the central data repository in the United States. As a result, a servicemember's lifelong medical record could be incomplete. The TF 146 communication section—led by Capt. Andrea Mitchell, 1st Lt. Patrick Kolenic, Staff Sgt.

John Porterm, and Spc. Robert Ferrall—played a vital role in this process.

Standardizing the Data

As providers followed the new mandates and used the monitoring tool to eliminate discrepancies, the uniformed information offered another benefit: improved medical surveillance data for the five area support medical company commanders. The data populated in theater databases, such as the Theater Medical Data Server and the Joint Medical Workstation, gave commanders a more accurate depiction of needs and activities within the AOR, covering more than 17 MTF locations.

Commanders had better insight of the efforts tackled by the battalion's healthcare providers. The daily and weekly roll-up reports offered the full picture, including complete patient, facility, and provider data to make better-informed analytical decisions.

"By having everyone enter the medical data in a uniform method, the surveillance reports improved exponentially," McCurdy said. "The roll-up surveillance reports are where we really see the fruit of the battalion's efforts. By having standardized data from every MTF, it offered us access to a plethora of reporting and analysis tools. We're able to generate reports showing the workload for each clinic as well as the providers."

McCurdy continued, "We can analyze trends for specific locations based on injuries and demographic trends. We can also report the number of U.S. servicemembers treated in our facilities compared to local Department of Defense employees and contractors as well as Iraqi citizens."

Calling in the Experts

As TF 146 initially embarked on the mission of quality control, the battalion commander realized that TF 146 would need some assistance. She turned to the resident experts—the deployed MC4 technical support team—who helped the brigade weave through the intricacies of the programs within the MC4 system and the network.

MC4's technical support team traveled to every MTF with TF 146's clinical operations group to help address concerns from providers and commanders as well as handle problems with the MC4 systems and network. The work of MC4's trainers began before the battalion deployed, setting the foundation of system capabilities and expectations. As the trainers traveled to the MTFs, they worked with the providers to create templates to ease the use of the system and to provide additional training.

Trying Out the "What Ifs"

"The MMB received training on the MC4 system before we deployed, and it set the foundation for our expectations

for what the system was meant to do,” McCurdy said. “Our accomplishments have been brought about by need-based, on-the-job training. Someone would ask, ‘I wonder if the MC4 system can do X task’ and then try it.”

Sims took the lead for the “what if” questions. If the task could be accomplished, then it was implemented throughout the battalion to all the company commanders.

“If a task did not work, we would contact MC4 support personnel to uncover a solution,” McCurdy said. “This is how we ensured every aspect of medical encounters was captured in an EMR.”

At the request of McCurdy, MC4’s technical support team was involved in the policy development process. The team was also instrumental in updating the systems to better collect ancillary services and resolve network problems, including those with the ports preventing a facility’s ability to send patient data to the central database.

“We view the MC4 support personnel as a valuable extension of the battalion,” McCurdy said. “MC4’s trainers provide valuable services, and we look to MC4’s technical support team as our IT support to fix every issue that arises and to provide assistance when called upon.

“MC4’s support team is always there when we need them,” McCurdy added. “I think it would be hard to find IT support that has put in the number of face-to-face support hours that the MC4 team has done for us across our AOR. That is what has meant the most to us—the face-to-face support in the foxhole with us.”

Successful Improvements

There is no question that TF 146 has been successful in its efforts to improve the use of MC4.

“Ten months after we began the process to improve the quality of medical data collected by the brigade’s providers, more than 90 percent of the patient data that originate from our medical facilities are now captured within the MC4 system, and more than 80 percent of our patient visits have been recorded in EMRs,” McCurdy said. “Lately, we’ve been working on the ‘last mile’ efforts to have 100 percent of the patient data captured.”

The success achieved by TF 146 has not gone unnoticed outside of the AOR. The battalion and its company commanders are regularly asked to present on their efforts to improve the collection and reporting of medical data as well as address questions from other units regarding EMRs and use of the MC4 system. Additionally, some of

Commanders had better insight of the efforts tackled by the battalion’s healthcare providers. The daily and weekly roll-up reports offered the full picture, including complete patient, facility, and provider data to make better-informed analytical decisions.

the mandates implemented by TF 146 are currently under review for possible implementation throughout Iraq by the Multi-National Corps-Iraq.

“We were able to build upon TF 61’s efforts and successes to advance the use of MC4 throughout the AOR,” McCurdy said. “When we arrived, we realized it was extremely important for our providers to electronically document every medical procedure so that servicemembers have a complete medical history of every procedure conducted while they are deployed. But it is just as important that the data be entered in a uniform manner so that commanders can review roll-up reports to make accurate analytical decisions regarding medical support within the AOR.”

Commanders then know if they need to reallocate assets, be it personnel or materials, a benefit often overlooked.

“This difference in how medical care is recorded hasn’t reached the attention of the average servicemember yet,” said McCurdy. “I expect they’ll notice the efforts made by medical providers to properly document electronic health records when they are applying for VA medical benefits years from now. Actually, it might be better that they do not notice. Then it means we have achieved a completely seamless process and the entire electronic health record process works as it was intended.”

For more information about MC4, please go to <www.mc4.army.mil>.

The author welcomes comments and questions and can be contacted at bill.snethen@us.army.mil.